

SYLLABUS

COURSE SUMMARY

Certificate in LNG

Localised(values:[:])

Over 12 weeks, you will study:

- Introducing LNG: Background, Properties, Production and Use
- Production to Shipping
- Regasification to the End-User
- LNG Markets, Supply and Demand
- LNG Pricing & Trading
- LNG Projects, Contracts and Future Trends

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MODULE 1

Introducing LNG: Background, Properties, Production and Use

This module is designed to give an overview of the natural gas and LNG industries and to cover some of the important fundamental issues that later modules will build upon. It will also introduce some of the specialised technical terms and jargon which exist in all industries. This module will also introduce the various units of measurements that are used in the LNG industry worldwide.

What is LNG and how does it fit in to the global natural gas industry?

- Reserves
- Extraction and production
- International transportation of gas and LNG

Background to the LNG industry

- History
- Key players
- Key differences between natural gas/LNG and oil

Sources and properties of natural gas and LNG

- Natural gas and LNG: definitions and composition

Production and processing of LNG

Main uses of natural gas and LNG

- The residential, commercial and industrial markets

Conversions: LNG and natural gas; natural gas/LNG and other energy sources

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MODULE 2

Production to Shipping

This module introduces the concept of the value chain, its economics and a detailed discussion of the first parts of the chain from gas production through to LNG shipping.

Introducing the value chain

- Economics of the LNG value chain
 - Cost issues
 - Production of Natural Gas Liquids and Liquid Petroleum Gases
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Exploration, production and transportation of gas to the liquefaction plant

- Tax and royalty
 - Production sharing and service agreements
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Liquefaction

- The liquefaction "train"
 - Economies of scale
 - Liquefaction plant operations
 - Floating Liquefaction (FLNG) and small-scale liquefaction plants
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Shipping

- Introduction to LNG shipping
 - The LNG fleet
 - Drivers of growth
 - Key players
 - LNG ship finance
 - Freight calculations
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Safety and environmental issues

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MODULE 3

Regasification to the End-User

The purpose of this module is to build upon the information provided in Module 1 and to understand the initial parts of the LNG value chain.

Transportation from regasification terminal to end users

- Pipelines
 - LNG in different types of markets
 - LNG as the only form of gas supply
 - LNG as a small element of a predominately pipelinesupplied market
 - LNG and pipeline supply as approximately equal suppliers
 - LNG in liberalised gas markets and Third Party Access issues
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Regasification

- Elements of a regasification terminal
 - Optimising regasification terminal design and operations
 - Land based and floating terminals
 - Safety, environmental and permitting issues
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End-user issues

- Combined Cycle Gas Turbine (CCGT) power plants
 - LNG as a ship's fuel
 - Industrial users
 - Domestic and commercial users
 - Sales contracts to end-users and the ability to align these with LNG contracts
 - LNG as a "floating pipeline"
 - Differing legal systems
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LNG value chain: conclusion

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MODULE 4

LNG Markets, Supply and Demand

The purpose of this module is to provide an understanding of the issues impacting the market for LNG worldwide and the specific issues relating to the global supply and demand for LNG.

LNG in the context of global demand for energy

The global supply of LNG and its principal outlets

Geographical overview of markets

- Main suppliers
 - Main buyers
 - Changing patterns and emerging markets
 - New markets and new trade routes
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Supply security issues

- Gas and LNG in a carbon constrained world
- Diversity of supply and flexibility of destination
- Producers' dilemma: exports vs. domestic demands

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MODULE 5

LNG Pricing and Trading

The purpose of this module is to provide an understanding of the issues impacting the market for LNG globally and the specific issues relating to the global pricing of LNG.

Principles of gas and LNG pricing

- Pricing regimes in the various global markets
 - Cost components
 - Gas price indexation
 - Pipeline gas vs. LNG prices
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Long term vs. spot prices

LNG and gas trade

- How LNG and pipeline gas compete
 - How LNG can complement pipeline gas
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Trade barriers

Differences between long term and short term trading

- Emerging LNG spot trade
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The evolving dynamics of LNG trading

Short term LNG contracts and Master Sales Agreements

Global trade practices

Risk management

Payment security and guarantees

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MODULE 6

LNG Projects, Contracts and Future Trends

The purpose of this module is to provide an understanding of the ways that LNG projects are structured, the main contracts that underpin this structure and a discussion of the terms of a LNG SPA.

LNG projects

- The Joint Venture Model
 - Financing LNG projects
 - Project decisions
 - Developments of the Joint Venture Model
 - Other project models (e.g. tolling)
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The role of governments in LNG projects

LNG business models

- Liquefaction JVs
 - Import Terminals
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LNG contracts (Sales and Purchase Agreements)

- Main features of an LNG contract
 - Long term vs. short term
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Free On Board (FOB) vs. ex-ship contracts

The process of getting to a final agreement

- Term sheet
 - Heads of Agreement/Memorandum of Understanding
 - Full agreement
 - Negotiating process and time required
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LNG outlook and future trends

- Opportunities for the industry
- Potential threats